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(54) Title: COMPOSITE CERAMIC MATERIAL AND METHOD TO MANUFACTURE THE MATERIAL

(57) Abstract

The present invention relates to a method to manufacture a composite ceramic material having a high strength combined with bioactive properties, when the material is used as a dental or orthopedic implant, which includes preparing a powder mixture, mainly comprising partly a first powder, which in its used chemical state will constitute a bioinert matrix in the finished material, and partly a second powder, mainly comprising a calcium phosphate-based material. The invention is characterized in that said first powder comprises at least one of the oxides belonging to the group consisting of titanium dioxide (TiO_2), zirconium oxide (ZrO_2) and aluminum oxide (Al_2O_3), in that said second powder mainly comprises at least one of the compounds hydroxylapatite and tricalcium phosphate, in that a raw compact is made of said powder mixture and in that said raw compact is densified through an isostatic pressing in a hot condition (HIP) at a pressure higher than 50 MPa, a composite material being obtained, in which said matrix comprises one or several metal oxides of said first powder, in which matrix said compound hydroxylapatite and/or tricalcium phosphate is evenly dispersed. The invention also relates to a composite ceramic material as well as a body, completely or partially made of this material.

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